REMARKS

I. Status of Claims

Applicant has received the Office Action dated October 17, 2007, in which the Examiner: 1) rejected claims 13-15 under 35 U.S.C. §112, 2nd paragraph, as allegedly indefinite; 2) rejected claims 1-8, 13-22 and 25-26 under 35 U.S.C. §103(a) as allegedly obvious in view of Raleigh (U.S. Pat. No. 6,144,711) and Akaiwa (U.S. Pat. No. 5,710,995); and 3) rejected claims 9-11 under 35 U.S.C. §102(b) as allegedly anticipated by Raleigh. With this Response, Applicant amends claims 13-15 and 17. Based on the amendments and arguments herein, Applicant respectfully submits that this case is in condition for allowance.

II. Rejections under 35 U.S.C. §112, 2nd paragraph

The Examiner rejected claims 13-15 under 35 U.S.C. §112, 2nd paragraph, due to various antecedent basis issues. Applicant has amended claims 13-15 to correct these issues. Thus, Applicant respectfully requests that the Examiner remove these rejections.

III. Rejections under 35 U.S.C. §103(a)

The Examiner rejected claims 1-8, 13-22 and 25-26 under 35 U.S.C. §103(a) as allegedly obvious in view of Raleigh and Akaiwa. Applicant respectfully traverses this rejection. Claim 1 requires "diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the highest communication quality," where "the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna." Stated otherwise, claim 1 discloses a wireless device that has multiple antennas. For one or more of the antennas, the device generates a weighting vector that indicates a relative **transmission** power for **each sub-channel** for that antenna. The combination of Raleigh and Akaiwa fails to teach or suggest this limitation.

The Examiner admits that Raleigh fails to disclose this limitation. Office Action, p. 4. Thus, the Examiner turns to Akaiwa and asserts that Akaiwa teaches this limitation at col. 1, ll. 53-64 and at col. 4, ll. 22-50. Applicant respectfully submits that the Examiner is

mistaken. Applicant now explains why each of these citations fails to disclose the limitation referenced above.

Col. 1, ll. 53-64 of Akaiwa may be explained in reference to Figs. 1-2. This portion of Akaiwa refers to the correction circuit 13. Col. 2, l. 33. The circuit 13 receives multiple antenna signals via antennas 11 and 12. In turn, the circuit 13 generates a corrected signal as a weighted combination of the received antenna signals using a constant modulus process. Col. 2, l. 18. Akaiwa also discloses a diversity selecting circuit 14, which selects the best of a plurality of received antenna signals and generates a corresponding diversity signal. Col. 1, ll. 55-58; col. 2, ll. 18-21. The circuit 13 provides its corrected signal to the signal quality monitor 17, and the circuit 14 also provides its diversity signal to the signal quality monitor 17. In turn, the signal quality monitor 17 outputs either the corrected signal (which was received from the circuit 13) or the diversity signal (which was received from the circuit 14). Thus, to summarize, Akaiwa discloses a **receiver** that is used to **receive** signals, process them in well-known ways (col. 1, ll. 27-40) to produce two candidates (the corrected signal and the diversity signal), and select the best candidates from the two candidates for further processing.

These teachings of Akaiwa are unlike the invention of claim 1, which requires that "the weighting vector specifies a relative **transmission** power for **each sub-channel** for the associated antenna" (emphasis added). In fact, it even appears that the subject matter of Akaiwa (which teaches selecting from a corrected signal and a diversity signal according to some criterion) is not even related to the subject matter of claim 1 (which is directed to transmission weighting vectors for antennas).

Col. 4, ll. 22-50 of Akaiwa discusses how the signal quality monitor circuits 17 and 20 (Figs. 1-2) may select which of the corrected signal (from processing circuit 13) and the diversity signal (from processing circuit 14) should be forwarded to the terminal 19. Akaiwa teaches that, for example, mean power may be used as a determining factor. Col. 4, ll. 18-21. However, Akaiwa still fails to teach a weighting vector used for transmission, where the vector "specifies a relative **transmission** power for **each sub-channel** for the associated antenna" (emphasis added).

Based on the foregoing, independent claim 1 and dependent claims 2-8 are patentable over the combination of Raleigh and Akaiwa.

Claim 13 requires "on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the plurality of channel characteristics," As explained above, the combination of Raleigh and Akaiwa fails to teach or suggest this limitation. Claim 13 is patentable over the combination of Raleigh and Akaiwa for at least this reason. Claim 13 further requires "transmitting the weighted transmission signal from the second wireless device to the first wireless device via a plurality of communication pathways." Akaiwa does not even discuss transmission as required by claim 13, and it most certainly does not teach transmitting using the weighting vector of claim 13. Based on the foregoing, claim 13 and dependent claims 14-17 are patentable over the combination of Raleigh and Akaiwa.

Claim 18 requires "wherein the access point determines channel characteristics and a weighting vector for each antenna of the plurality of antennas, each weighting vector being indicative of an amount of power to be provided to each sub-channel for an associated antenna." As explained above, the combination of Raleigh and Akaiwa fails to teach or suggest this limitation, and thus claims 18 and dependent claims 19-22 are patentable over the combination of Raleigh and Akaiwa for at least this reason. In addition, claim 18 further requires "wherein the access point reproduces a data transmission signal, combines each copy of the data transmission signal with a different weighting vector to produce weighted transmission signals, and transmits each weighted transmission signal to the wireless station via a separate communication pathway." As explained above, Akaiwa fails to teach transmission as required by claim 18, and Akaiwa most certainly fails to teach transmission using the weighting vector of claim 18. Thus, independent claim 18 and dependent claims 19-22 are patentable for this additional reason.

Claim 25 requires "for each sub-channel, selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the number of data transmissions since the communication quality was most recently determined" and

"concurrently transmitting data via the plurality of antennas across the plurality of sub-channels." As explained above, the combination of Raleigh and Akaiwa fails to teach such limitations. Thus, claim 25 is patentable over the combination of Raleigh and Akaiwa.

Claim 26 requires "for each sub-channel, selecting a plurality of antennas and providing power to each antenna of the plurality of antennas based on the amount of time elapsed since the communication quality was most recently determined" and "concurrently transmitting data via the plurality of antennas across the plurality of sub-channels." As explained above, the combination of Raleigh and Akaiwa fails to teach or suggest such limitations. Thus, claim 26 is patentable over the combination of Raleigh and Akaiwa.

IV. Rejections under 35 U.S.C. §102(b)

The Examiner rejected claims 9-11 under 35 U.S.C. §102(b) as allegedly anticipated by Raleigh. Applicant respectfully traverses this rejection. Claim 9 requires "on a per sub-channel basis, computing a weighting vector for each antenna of the plurality of antennas based on the channel characteristics." Claim 9 further requires that the computing comprises "representing the weighting vector using a plurality of bits, each bit corresponding to a different sub-channel, and each bit indicating whether an antenna associated with the weighting vector is used to transmit data on the corresponding sub-channel." Raleigh fails to teach or even suggest this limitation.

The Examiner asserts that Raleigh discloses this limitation at col. 2, ll. 1-15, col. 6, ll. 42-67, and col. 8, ll. 40-58. Applicants now explain why each of these citations fails to teach the limitation referenced above.

Col. 2, ll. 1-15 of Raleigh merely mention that multiple transmitter/receiver elements may be used. Col. 6, ll. 42-67 of Raleigh discuss spatial processing, in which one or more symbols that are to be transmitted are multiplied with one or more spatial vector weights. This portion of Raleigh further describes optimization of spatial vector weights so as to minimize interference between sub-channels. Col. 8, ll. 40-58 also describes optimization of vector weights. Although these citations do appear to discuss

vector weights, sub-channels, etc., they still fail to teach or suggest the determination of a weighting vector for multiple antennas, with each vector comprising multiple bits, each bit indicating whether the antenna corresponding to that vector is used to transmit data on the sub-channel associated with that bit (as required by claim 9). Raleigh's mere application of vector weights to transmission signals (and Raleigh's adjustment of the vector weights) does not meet the limitations of claim 9. Based on the foregoing, claims 9-11 are patentable over Raleigh.

V. Conclusion

Applicant respectfully requests reconsideration and that a timely Notice of Allowance be issued in this case. In the event that additional fees related to this Amendment, or other transactions in this case, are required (including fees for net addition of claims, time extensions, *etc.*), the Examiner is authorized to charge Texas Instruments Inc.'s Deposit Account No. 20-0668 for such fees.

Respectfully submitted,

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